12/2pm

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-IV Semester (CSE/IT)

COURSE CODE (CREDITS): 24B11CI411(3) MAX. MARKS: 15

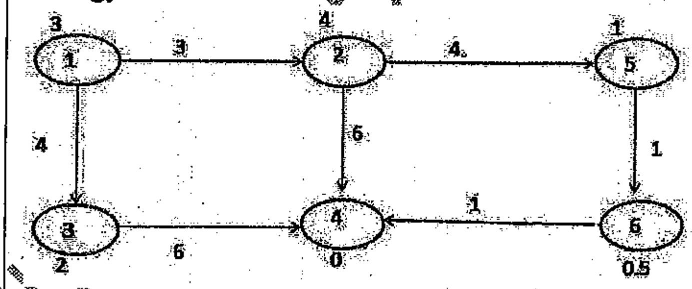
COURSE NAME: Artificial Intelligence (AI): Recent Trends and Applications

COURSE INSTRUCTOR: Dr. Rakesh Kanji MAX. TIME: 1 Hour

Note: *(a) Attempt any 5.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculators is not allowed

Q.No	Question	CO	Marks
Q1	Draw a state space tree for Tic toe game with 3 levels and assign heuristic wining value for every state, assuming root at level 1.	1	3
Q2	(i) Build a minimax tree with Binary tree (every node must have two children) with 5^{th} levels. Assuming root is at level 1 and max node. Consider leaves data from left to right as 3,4,2,1,7,8,9,10,2 11,1,12,14,9, 13,16 at 5^{th} level. Apply alpha beta pruning to find the best score as found in root. (ii) Compare the no of pruning occurs in above tree with asymptotic best case of pruning.	1	2+1
Q3	Apply A* algorithm in below pictures with suitable searching strategy.  Take node 1 and 4 as source and goal node respectively and heuristic value as per convention are around the nodes.	1	3
Q4	Discuss the significance of rules like Degree heuristic, minimum remaining values and least constrain values for map coloring with an example.	1	1+1+1
Q5	(i) Identify the requirement of using Inference steps in Constraint satisfaction problem. (ii) Write down methodology with complexity of AC3 algorithm.	1	1+2
Q6	(i) Discuss propositional logic with some examples. (ii) Verify P->Q or Q->P is tautology.	1	1+2

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